

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

Claims 1-14. (Canceled).

15. (New) A method of monitoring the proportion of a component in a gaseous mixture, said gaseous mixture having at least two components and being contained in an electrical switchgear enclosure, said method comprising the steps of:

- a) measuring the pressure, the temperature, and the density of the gas mixture contained in the electrical switchgear enclosure by means of sensors mounted on said enclosure,
- b) determining said proportion by processing the measured values of pressure, temperature and density in a data-processing unit,
wherein step a) is carried out without tapping said gas mixture.

16. (New) The method according to claim 15, in which said electrical switchgear enclosure is a high-voltage switchgear.

17. (New) The method according to claim 15, in which said electrical switchgear enclosure is a gastight enclosure.

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18. (New) The method according to claim 15, in which said proportion of a component in the mixture is calculated by the data-processing unit which is programmed to solve the thermodynamic state equations of said components.

19. (New) A method according to claim 15, in which said proportion of a component in the mixture is determined by the data-processing unit which stores a data table in a memory, said data table containing a plurality of data items representative of various proportions of said component in correspondence with data items representative of various measurements of the pressure, of the temperature, and of the density of the gas mixture containing said component.

20. (New) A method of monitoring the proportion of a component in a gaseous mixture, said gaseous mixture having at least two components and being contained in an electrical switchgear enclosure, said method comprising the steps of:

a) measuring the pressure, the temperature, and the density of the gas mixture contained in the electrical switchgear enclosure by means of sensors mounted on said enclosure, one of said sensors being a vibrating-blade sensor,

b) determining said proportion by processing the measured values of pressure, temperature and density in a data-processing unit,

wherein step a) is carried out without tapping said gas mixture, and wherein the density is measured by means of said vibrating-blade sensor.

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21. (New) A method of monitoring the proportion of a component in a gaseous mixture, said gaseous mixture having at least two components and being contained in an electrical switchgear enclosure, said method comprising the steps of:

- a) measuring the pressure, the temperature, and the density of the gas mixture contained in the electrical switchgear enclosure by means of sensors mounted on said enclosure, one of said sensors being a capacitor whose capacitance is a function of the permittivity of the gas mixture,
- b) determining said proportion by processing the measured values of pressure, temperature and density in a data-processing unit,

wherein step a) is carried out without tapping said gas mixture, and wherein the density is measured by means of said capacitor.

22. (New) A method of monitoring the proportion of a component in a gaseous mixture, said gaseous mixture having at least two components and being contained in an electrical switchgear enclosure, said method comprising the steps of:

- a) measuring the pressure, the temperature, and the density of the gas mixture contained in the electrical switchgear enclosure by means of sensors mounted on said enclosure, one of said sensors being an interferometer,
- b) determining said proportion by processing the measured values of pressure, temperature and density in a data-processing unit,

wherein step a) is carried out without tapping said gas mixture, and wherein the density is measured by means of said interferometer.

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23. (New) A method according to claim 18, in which the data-processing unit is a microcomputer.
24. (New) A method according to claim 18, in which the data-processing unit is formed by microprocessors or microcontrollers.
25. (New) Electrical switchgear provided with an enclosure containing a mixture of at least two dielectric gases under pressure, wherein the proportions of the dielectric gases in the mixture are determined by implementing a method according to claim 15.
26. (New) Electrical switchgear according to claim 25, wherein the electrical switchgear enclosure is a high-voltage switchgear.
27. (New) Electrical switchgear according to claim 25, wherein electrical switchgear enclosure is a gastight enclosure.
28. (New) Electrical switchgear provided with an enclosure containing a gaseous mixture of at least two dielectric gases under pressure, wherein the proportion of one of these dielectric gases in the mixture is determined by implementing a method comprising the steps of:

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a) measuring the pressure, the temperature, and the density of the gas mixture contained in the electrical switchgear enclosure by means of sensors mounted on said enclosure,
b) determining said proportion by processing the measured values of pressure, temperature and density in a data-processing unit,

wherein step a) is carried out without tapping said gas mixture, and wherein the gas mixture is made up of two components constituted by N₂ and SF₆ or by CF₄ and SF₆.

29. (New) A method of monitoring the proportion of a component in a gaseous mixture, said gaseous mixture having at least two components and being contained in an electrical switchgear enclosure, said method comprising the steps of:

a) measuring the pressure, the temperature, and the density of the gas mixture contained in the electrical switchgear enclosure by means of sensors mounted on said enclosure,
b) determining said proportion by processing the measured values of pressure, temperature and density in a data-processing unit, and
c) running algorithms in the data-processing unit for correcting errors and drift specific to said sensors,

wherein step a) is carried out without tapping said gas mixture.

30. (New) A system for monitoring the proportion of a component in a gaseous mixture, said gaseous mixture having at least two components and being contained in an electrical switchgear enclosure, said system comprising:

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at least one sensor mounted on said enclosure for measuring the pressure, the temperature, and the density of the gas mixture contained in the electrical switchgear enclosure, said sensor measuring without tapping the said gas mixture, and

a data processing unit for processing the measured values of pressure, temperature and density.

31. (New) A system for monitoring the proportion of a component in a gaseous mixture, said gaseous mixture having at least two components and being contained in an electrical switchgear enclosure, said system comprising:

first means mounted on said enclosure for measuring the pressure, the temperature, and the density of the gas mixture contained in the electrical switchgear enclosure, said first means measuring without tapping said gas mixture, and

second means for processing the measured values of pressure, temperature and density.

32. (New) A method according to claim 15, in which said gaseous mixture acts as an insulation gas in the electrical switchgear.